Inga megaphylla (Leguminosae, Mimosoideae), a New Species from Western Amazonia (Colombia, Peru), with Comments on Architectural Features Unusual in the Genus *Inga*

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ABSTRACT. A new species of *Inga*, discovered by one of the authors (HV), is described and named as *Inga megaphylla* Poncy & Vester. The architecture of this small understory cauliflorous tree is described and compared with that of another understory species recently described from French Guiana, *Inga retinocarpa* Poncy.

Inga (sect. *Inga* ser. *Pilosulae*) **megaphylla** Poncy & Vester, sp. nov. TYPE: Colombia. Amazonas: Río Caquetá, Araracuara, 16 Oct. 1990 (fl), *Vester, Castro & Cleef 126* (holotype, P; isotype, COAH). Figures 1–8.

Arbor parva, foliis amplis, foliolis (2–)3–4(–5)-jugis, rachide alata. Inflorescentiae spicatae, cauliflorae, floribus pubescentibus. Calyx irregulariter fissus; corolla ca. 14 mm longa; tubus staminalis exsertus. Legumen rectum, glabrum, seminibus prominentibus.

Treelet, the fertile plants collected 6–10 m high, with a trunk 3–9 cm diam.; bark light gray, scarcely lenticelled. Young twigs rusty pubescent. Leaves very large, pinnate with (2–)3–4(–5) pairs of leaflets. Stipules early caducous, seen on the seedling only. Petiole 7–10(–15) cm long, thick (up to 8 mm diam.) terete at length or distally narrowly winged, glabrous or slightly tomentose, lignified on old leaves. Segments of the rachis 6–10 cm each, winged, oblong, up to 2 cm wide, the main nerve tomentose on both faces. Nectaries orbicular, 12 mm diam. Leaflets elliptic and almost symmetrical, those of the proximal pair ca. 16 × 6 cm, of the distal one up to 40 × 15 cm; base acute to cuneate, apex acute to obtuse, acuminate. Inflorescence a cauliflorous spike, arising from the trunk or older lateral branches up to 6–10 m from the ground, solitary or fascicled in the axil of prominent and large (ca. 1.5 cm) triangular leaf scars; peduncle slender, 1.5–5(–7)cm long; rachis 1.5–2 cm long; bracts (very few seen) caducous, or if persistent inconspicuous (1 mm long), rigid, scaly; flowers pedicellate, pedicel ca. 1.5 mm long; calyx funnelform, yellowish, very light-rusty, 6–7 mm long, irregularly cleft, glabrous to lightly pubescent, and more so on the margins of the teeth, these acute, ca. 2 mm long; corolla pale yellowish green, 13–14 mm long, covered with dense appressed shiny hairs, the lobes acute ca. 2.5 mm long; androecium white, the staminal tube exserted, up to 17 mm long, the free part of the filaments ca. 30 mm; bases of the staminal tube and corolla fused in a 2-mm-long stemonozone; nectariferous dots are visible inside the staminal tube at its base, surrounding the base of the ovary. Ovary glabrous, ovules 20–24 (4 flowers dissected). Pod straight, hanging, 15–20(–22) cm × ca. 1.7 cm, glabrous; the sutures slightly prominent, 2–3 mm wide, the valves transversally rippled, dark green at maturity, the seeds not contiguous, prominent. Seeds 14–16 (26 for the specimen from Peru), 1.5 × 7.8 mm, the tegument a white edible pulp, the cotyledons bright black. Seedling: epicotyl 4 cm; first leaves opposite, bifoliolate (i.e., with one pair of leaflets), the petiole ca. 0.5 cm; next leaves alternate with a longer and winged petiole, the first 2–5 next ones also bifoliolate, then with two, then three pairs of leaflets; axis, terminal bud, and veins green tomentose; stipules ca. 0.5 cm long, linear.

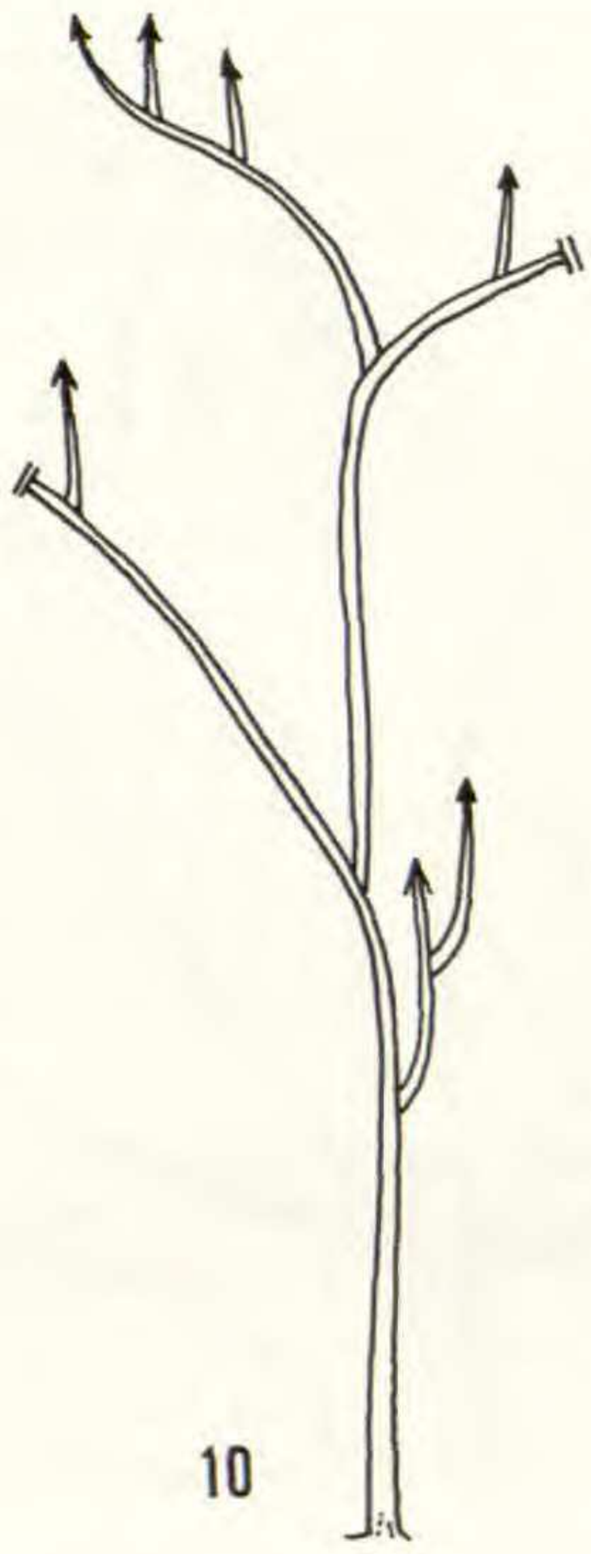
The specific epithet refers to the very large leaves.

Distribution. Lowland rainforest of western Amazonia (southern Colombia and northern Peru).

Local name. Jiteinicoai (huitoto).

Inga megaphylla is referable to series *Pilosulae*

Figures 1–8. *Inga megaphylla* Poncy & Vester. —1. Leaf. —2. Inflorescence. —3. Fruit. —4. Flower. —5. Longitudinal section of the base of the flower, the ovary removed, the calyx dotted, the corolla, staminal tube, and stemonozone hatched. —6. The dorsifixed anther, lateral and vertical views. —7. Stigma. —8. Seedling (only one leaf of the first opposite pair of leaves is drawn).



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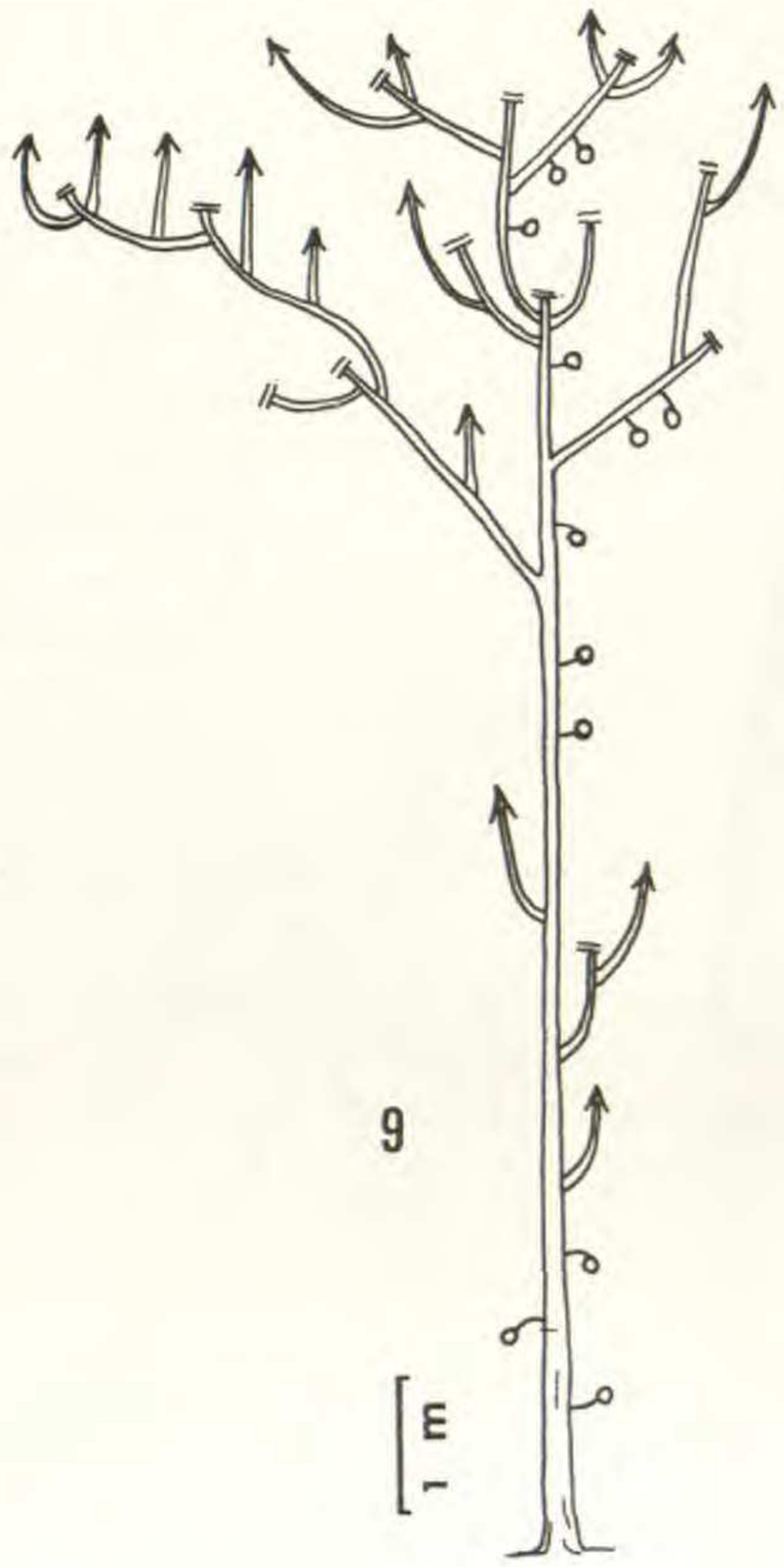

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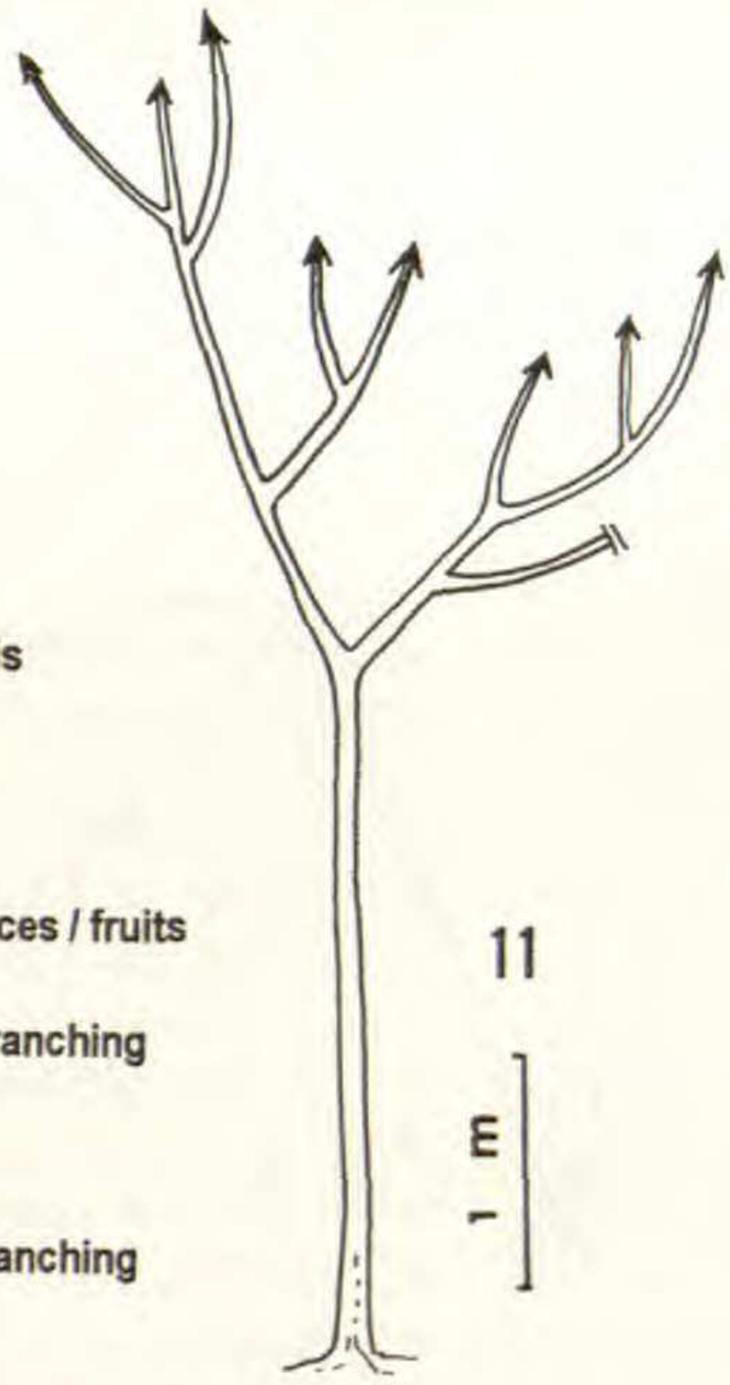

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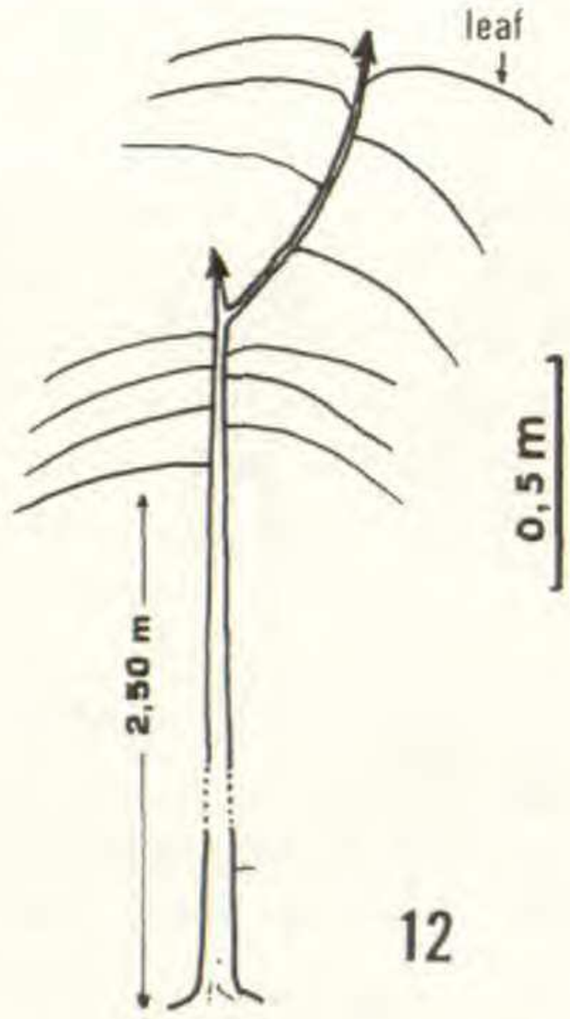

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Figures 9–12. Architecture of *Inga megaphylla* (9, 10) in Colombia and *I. retinocarpa* (11, 12) in French Guiana. — 9. *Inga megaphylla*, branching pattern of a ca. 10-m-high tree. —10. Schematic architectural pattern drawn from observation of several individuals. —11. *Inga retinocarpa*, branching patterns of an individual 5.50 m high. —12. Habit of an individual 3.50 m high: all leaves are represented; branching was sylleptic although the primary axis continues living without developing further.

of section *Inga*. Its floral characters suggest affinities with *I. splendens* Willdenow, which, however, has sessile flowers and a larger calyx.

Inga megaphylla is an understory, cauliflorous treelet with very large leaves that simulate lateral branches. Its architecture can be described as follows (Figs. 9, 10): main axis unbranched or sparsely branched often up to 4 m high; branches orthotropic like the main axis; branching not rhythmic or not clearly so; sylleptic branching very scarce and only one branch at a time; most branching proleptic. The individual illustrated in Figure 9 exhibits these features, while Figure 10 integrates all the observations made. The architectural model must be related to Champagnat's model (Hallé & Oldeman, 1970; Hallé et al., 1978), although the axes do not bend in the way suggested in the definition of that model. In a somewhat open undergrowth with more light available, the trunk and branches can be slender and bending.

The habit of our new species can be compared with that of another understory, cauliflorous species described from French Guiana, *Inga retinocarpa* Poncy (Poncy, 1991). This species appears to be quite common around the Field Research Station "Les Nouragues" (French Guiana), near the Arataye River, where the type specimen was collected. This is also a small tree, although it seems to reach a greater size than *I. megaphylla*. However, small individuals only 4 m high consisting of one orthotropic, very scarcely branched primary axis can be fertile. All samples observed have orthotropic lateral branches with spirally arranged leaves (Figure 12). Branching is mainly sylleptic, and as in *I. megaphylla* not clearly rhythmic, but certainly not continuous. The result of this sylleptic branching is that *I. retinocarpa* forms a broader crown. The basic architectural model is nevertheless difficult to determine for such plants in very constraining living conditions. The species is now grown in the nursery of the camp, but only the early stages have been observed; indeed, *I. retinocarpa* seems to grow extremely slowly, so that trees of 5 cm diameter could be several decades old.

Such architectural features are surprising in a genus where so many species exhibit the same Troll's model (Poncy, 1985). *Inga megaphylla* and *I. retinocarpa*, which are remotely allopatric and not closely related taxonomically, seem, however, to have adapted in very similar ways to understory conditions.

Paratypes. COLOMBIA. **Caquetá:** Río Caquetá, Araracuara, 2 Feb. 1991 (fr), *Vester & Castro 315* (COAH, P), 28 Sep. 1993 (fl), *Vester & Roman 805* (COL, COAH, P, AMD). PERU. **Loreto:** rio Yubineto, 15 Feb. 1978 (fr), *Barrier 668* (P).

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